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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/976,591 | 10/12/2001 | Tao Chen | 020020 | 2233 |

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Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
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EXAMINER

HOM, SHICK C

ART UNIT PAPER NUMBER

2666

DATE MAILED: 08/09/2004

[Handwritten signature]

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/976,591

Applicant(s)

CHEN ET AL.

Examiner

Shick C Hom

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/12/01, 1/31/02, 2/1/02, 10/3/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-54 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>5_7</u> . | 6) <input type="checkbox"/> Other: _____ |

Art. Unit: 2666

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Art Unit: 2666

Claim Objections

3. Claims 1-7, 9, 10, 12-25, 28, 30, 34, 38, 43, 45, 49, and 52 are objected to because of the following informalities: In claim 1 line 5 delete typo "as second" and insert ---a second---. In claim 2 line 2 the words "a plurality of buffers" and "an first code" seem to refer back to "a plurality of buffers" and "a first code" recited in claim 1 line 3. If this is true, it is suggested changing "a plurality of buffers" and "an first code" to ---the plurality of buffers--- and ---the first code---, respectively. In claims 3, 9 line 2, the words "a plurality of buffers" seem to refer back to "a plurality of buffers" recited in claims 1, 8 line 3, respectively. If this is true, it is suggested changing "a plurality of buffers" to ---the plurality of buffers---. In claim 5 lines 1 and 3, claim 7 lines 1 and 3, claim 10 lines 1-2 the words "a block of bits" seem to refer back to "a block of bits" recited in claims 4, 6, and 9 line 3, respectively. If this is true, it is suggested changing "a block of bits" to ---the block of bits---. In claim 6 lines 2 and 4, the words "an second code," "a set of frames," and "a second code" seem to refer back to "as second code" and "a set of frames" recited in claim 1 lines 5 and 5-6, respectively. If this is true, it is suggested changing "an

Art Unit: 2666

second code," "a set of frames," and "a second code" to ---the second code---, ---the set of frames---, and ---the second code---, respectively. In claim 12 line 2, claim 13 line 3 the words "a decoder" seem to refer back to "a decoder" recited in claim 8 line 2. If this is true, it is suggested changing "a decoder" to ---the decoder---. In claim 14 line 4, claim 14 lines 2, 3, claim 15 line 3 before the word "buffers" insert ---transmit--- as in claim 14 line 2 for consistency. In claim 15 lines 2, 3 change "a plurality" and "an first" to ---the plurality--- and ---the first---. In claim 16 lines 2, 3 change "a plurality" and "a block" to ---the plurality--- and ---the block---, respectively. In claim 18 lines 1, 3 change "a block" to ---the block---. In claim 19 lines 2, 4 change "'an second" and "a set" to ---the second--- and ---the set---, respectively. In claims 20, 22 lines 1, 3, claims 38, 49 line 3 change "a block" to ---the block---. In claim 21 line 2 change "a plurality" to ---the plurality---. In claim 25 line 3 change "an first" to ---the first--- because it seems to be reciting the first decoder of claim 24 line 2. In claims 28, 30, 43, 45 line 1 delete typo "each of each of" and insert ---each of---. In claims 24, 52 line 3 change "a block" to ---the block---. In claim 52 line 2 change "a buffer" to ---the buffer---.

Appropriate correction is required.

Art Unit: 2666

Claim Rejections - 35 USC § 112

4. Claims 3, 7, 9-10, 12, 17-18, 20-22, 25, 36-39, 45, 47, 50-51, and 53-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 3 lines 1-2 which recite "wherein said encoding systematic bits in each of a plurality of buffers with a block code" lack clear antecedent basis because no "said encoding systematic bits in each of a plurality of buffers with a block code" have been previously recited in the claims and therefore the limitation is not clearly understood. In claims 7, 9 line 3, claim 9 line 4, claim 10 line 2 which recite "a buffer" is not clear whether and how it relates to the plurality of buffers of claims 1, 8 line 3, respectively, and whether it is merely reciting one of the plurality of buffers. In claim 12 line 3 which recite "the buffer" lacks clear antecedent basis because no buffer have been previously recited in the claims and therefore the limitation is not clearly understood. In claim 17 line 2 which recite "the plurality of first buffers" lack clear antecedent basis. In claim 18 line 3 which recite "the transmitting buffer" lacks clear antecedent basis and is not

Art Unit: 2666

clear as to whether it is reciting ---one of the transmitting buffers--- of claim 14 line 2. In claim 20 line 3, claim 21 lines 3, 4, claim 22 line 2, claim 25 line 3 which recite "the buffer" lack clear antecedent basis. In claims 36, 39, 50, 53 line 1 which recite "The method" lack clear antecedent basis. In claim 37 line 3, claim 38 line 2, claim 39 line 3, claim 47 line 2, claim 51 line 3, claims 53, 54 line 3 which recite "the buffer," "a buffer," and "said buffer" lack clear antecedent basis and is not clear as to whether they're reciting one of the plurality of buffers of claim 35 line 4 and claim 41 line 2 and line 10, respectively.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 8, 14, 26, 35, and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Greenblatt (5,136,586).

Regarding claim 1:

Art Unit: 2666

Greenblatt disclose the encoding method for reducing decoding complexity, the method comprising: encoding systematic bits in each of a plurality of buffers with a first code; multiplexing content of the plurality of buffers; and encoding said multiplexed content with a second code to provide a set of frames (see the abstract which recite multiplexing voice and modem-encoded digital data within each frame, Figs. 2 and 3, which shows the buffers A and B, and the multiplexer for multiplexing the content of the buffers A and B, including the modem-encoder; further see col. 3 lines 6-28 which recite encoding using buffer memory devices and the decoding side).

Regarding claim 8:

Greenblatt disclose the method reducing decoding complexity, comprising: decoding received frames by a second decoder; de-multiplexing correctly decoded frame to a plurality of buffers; and processing content of each of the plurality of buffers (see col. 3 lines 6-28 which recite encoding using buffer memory devices, the receiving equipment including the step of decoding and de-multiplexing to buffers C and D, and Fig. 3 which shows the D-A processing the content of the buffers).

Regarding claim 14:

Art Unit: 2666

Greenblatt disclose the method for reducing decoding complexity, comprising: encoding systematic bits in each of a plurality of transmit buffers with an first code; multiplexing content of the plurality of buffers; encoding said multiplexed content with an second code to provide a set of frames (see the abstract which recite multiplexing voice and modem-encoded digital data within each frame, Figs. 2 and 3, which shows the buffers A and B, and the multiplexer for multiplexing the content of the buffers A and B, including the modem-encoder; further see col. 3 lines 6-28 which recite encoding using buffer memory devices and the decoding side); transmitting the set of frames (see col. 1 lines 26-49 which recite the information being transmitted in a digital channel); decoding received frames by an second decoder; de-multiplexing correctly decoded frame to a plurality of receive buffers; and processing content of each received buffer (see col. 3 lines 6-28 which recite encoding using buffer memory devices, the receiving equipment including the step of decoding and de-multiplexing to buffers C and D, and Fig. 3 which shows the D-A processing the content of the buffers).

Regarding claim 26:

Greenblatt disclose the apparatus for reducing decoding complexity, comprising: a plurality of buffers; a plurality of

Art Unit: 2666

encoders, each of said plurality of encoders being communicatively coupled to one of said plurality of buffers; a multiplexer communicatively coupled to said plurality of buffers; and an inner encoder communicatively coupled to said multiplexer (see the abstract which recite multiplexing voice and modem-encoded digital data within each frame, Figs. 2 and 3, which shows the buffers A and B, and the multiplexer for multiplexing the content of the buffers A and B, including the modem-encoder; further see col. 3 lines 6-28 which recite encoding using buffer memory devices and the decoding side).

Regarding claim 35:

Greenblatt disclose the apparatus for reducing decoding complexity, comprising: an first decoder; a de-multiplexer communicatively coupled to said first decoder; a plurality of buffers communicatively coupled to said de-multiplexer; and a plurality of decoders, each of said plurality of decoders being communicatively coupled to one of said plurality of buffers (see col. 3 lines 6-28 which recite encoding using buffer memory devices, the receiving equipment including the step of decoding and de-multiplexing to buffers C and D, and Fig. 3 which shows the D-A processing the content of the buffers).

Regarding claim 41:

Art Unit: 2666

Greenblatt disclose the apparatus for reducing decoding complexity, comprising: a plurality of transmit buffers; a plurality of encoders, each of said plurality of encoders being communicatively coupled to one of said plurality of transmit buffers; a multiplexer communicatively coupled to said plurality of transmit buffers; an inner encoder communicatively coupled to said multiplexer (see the abstract which recite multiplexing voice and modem-encoded digital data within each frame, Figs. 2 and 3, which shows the buffers A and B, and the multiplexer for multiplexing the content of the buffers A and B, including the modem-encoder; further see col. 3 lines 6-28 which recite encoding using buffer memory devices and the decoding side); a first decoder; a de-multiplexer communicatively coupled to said first decoder; a plurality of receive buffers communicatively coupled to said demultiplexer; and a plurality of decoders, each of said plurality of decoders being communicatively coupled to one of said plurality of receive buffers (see col. 3 lines 6-28 which recite encoding using buffer memory devices, the receiving equipment including the step of decoding and de-multiplexing to buffers C and D, and Fig. 3 which shows the D-A processing the content of the buffers).

Art Unit: 2666

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2666

9. Claims 2-5, 9, 11, 15-18, 21, 23, 27-32, 37-38, 40, 42-47, 51, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenblatt (5,136,586) in view of Naden et al. (6,560,206).

Regarding claims 2-5, 9, 11, 15-18, 21, 23, 27-32, 37-38, 40, 42-47, 51, and 54:

For claims 2-5, 9, 11, 15-18, 21, 23, 27-32, 37-38, 40, 42-47, 51, and 54 Greenblatt discloses the apparatus and method described in paragraph 6 of this office action. For claims 2-5, 9, 11, 15-18, 21, 23, 27-32, 37-38, 40, 42-47, 51, and 54 Greenblatt discloses all the subject matter of the claimed invention with the exception of wherein said encoding systematic bits in each of a plurality of buffers with an first code comprises: encoding systematic bits in each of the plurality of buffers with a block code as in claims 2, 15, 29, and 44; encoding systematic bits in each of the plurality of buffers with a Reed-Solomon code as in claims 3, 16, 30, and 45; encode systematic bits to provide parity bits as in claims 27-28 and 42-43; wherein said multiplexing and de-multiplexing content of the plurality of buffers comprises: providing a block of bits successively from a row of each of the plurality of buffers as in claims 4-5, 9, 17-18, 21, 31-32, 37-38, 46-47, 51; and wherein said processing content of each receive buffer

Art Unit: 2666

comprises: providing systematic portion of each buffer to higher layers as in claims 11, 23, 40, 54.

Naden et al. from the same or similar fields of endeavor teach that it is known to encode systematic bits in each of the plurality of buffers with a block code; encode systematic bits in each of the plurality of buffers with a Reed-Solomon code; and encode systematic bits to provide parity bits (see col. 7 line 66 to col. 8 line 49 which recite the use of Reed-Solomon block code and the parity bits); and wherein said multiplexing and de-multiplexing content of the plurality of buffers comprises: providing a block of bits successively from a row of each of the plurality of buffers (see the frame structure in Figs. 3-4); and wherein said processing content of each receive buffer comprises: providing systematic portion of each buffer to higher layers (see col. 10 lines 40-46). Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to encode systematic bits in each of the plurality of buffers with a block code; encode systematic bits in each of the plurality of buffers with a Reed-Solomon code; encode systematic bits to provide parity bits; and wherein said multiplexing and de-multiplexing content of the plurality of buffers comprises: providing a block of bits successively from a row of each of the plurality of buffers; and

Art Unit: 2666

wherein said processing content of each receive buffer comprises: providing systematic portion of each buffer to higher layers as taught by Naden et al. in the apparatus and method of Greenblatt. The encoding systematic bits in each of the plurality of buffers with a block code; with a Reed-Solomon code; and having bits to provide parity bits can be implemented by using the Reed-Solomon block code including the parity bits of Naden et al. in the encoder of Greenblatt. The motivation for encoding systematic bits in each of the plurality of buffers with a block code; with a Reed-Solomon code; and having bits to provide parity bits as taught by Naden et al. in the method and apparatus of Greenblatt being that it provides more reliable and efficiency for the system since the system can optimize the coding performance.

Allowable Subject Matter

10. Claims 6-7, 10, 12, 13, 19, 20, 22, 24, 25, 33, 34, 36, 39, 48-50, 52, 53 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Art Unit: 2666

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zehavi discloses a method and apparatus for providing error protection for over the air file transfer.

Chapping disclose cell aligners.

Haartsen discloses multi-channel automatic retransmission query (ARQ) method.

Yamada et al. disclose multiprocessing system for assembly/disassembly of asynchronous transfer mode cells.

12. Any response to this nonfinal action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306, (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (2600 Receptionist at (703) 305-4750).

Art Unit: 2666

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shick Hom whose telephone number is (703) 305-4742. The examiner's regular work schedule is Monday to Friday from 8:00 am to 5:30 pm EST and out of office on alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao, can be reached at (703) 308-5463.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



DANGTON
PRIMARY EXAMINER

SH

July 29, 2004